these beetles were found to vector spores of various *Ophiostoma* spp. Based on these results, our view is that these mites act as primary vectors of the *Ophiostoma* spp. in *Protea* infructescences.

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Wound callose synthesis in response to Russian wheat aphid and Bird cherry-oat aphid feeding on barley cv Clipper

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Callose deposition is a response to wounding and may occur rapidly after plant cell damage. The patterns of callose deposition and gene expression as a result of aphid infestation were investigated in barley (*Hordeum vulgare* cv Clipper), using the Russian wheat aphid (RWA), *Diuraphis noxia* Mordvilko and the Bird cherry-oat aphid (BCA), *Rhopalosiphum padi* L. The former species causes chlorosis and necrosis symptoms whereas BCA gives no visible symptoms. Wound callose deposition in longitudinal veins was observed in RWA-infested leaves after 24 h of infestation, using aniline blue fluorochrome stain for callose and fluorescence microscopy. The deposition was pronounced after 72 h, progressing during prolonged terms (7–14 days) of infestation. In contrast, no callose deposition was found in BCA-infested leaves even after 72 h, except for callose associated with sieve plate pores and pore-plasmodesmal units, which was similar to results observed in control plants. Limited callose formation was observed even after the 7–14 day time period. The results suggest that wound callose development may be partly responsible for the symptoms resulting from RWA feeding. In order to investigate whether the observed differences in callose deposition are regulated at the transcriptional level, the expression of gene sequences coding for callose synthases and β-1,3-glucanases were studied using real-time PCR. The results showed similar expression of callose synthases in control and aphid-infested tissue, but stronger expression of two β-1,3-glucanases induced by aphids, by RWA compared with BCA. This suggests that synthesis of callose was not regulated at the transcriptional level. The role of the β-1,3-glucanases is as yet not established.

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Determination of cytotoxic activity and antimicrobial effects of selected medicinal plants against clinical isolates of *Campylobacter* species and *Entamoeba histolytica*

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Campylobacter jejuni and *Entamoeba histolytica* are both aetiological agents of diarrhoea worldwide. The quest for alternative therapeutic remedies necessitated the need to ascertain the antimicrobial activity of medicinal plants against both pathogens. The safety of the use of the plants was also tangential to this investigation. In this study, the antimicrobial activity of 18 plants traditionally used to treat diarrhoea and other intestinal complains in Venda, South Africa, was determined against 110 clinical isolates of *Campylobacter* spp. Six of these plants were selected based on previous activity and tested against a standard strain of *Entamoeba histolytica*. The cytotoxicity of 14 of the plants was determined on vero cell culture. All the tests were conducted using the microdilution assays. At least one extract of each plan was active against the *Campylobacter* isolates. *Lippia javanica* and *Pterocarpus angolensis* were the most active against *Campylobacter* spp. with MICs of 90 μg/ml. Of the plants tested, only *Pterocarpus angolensis* and *Syzigium cordatum* were active against *E. histolytica* with MICs of 1.2 and 7.5 mg/ml respectively. Most plants showed low toxicity on the vero cells with IC_{50}> 400 μg/ml while *Bauhinia galpini* was the most toxic with IC_{50} of 2.7±2.5 μg/ml. Results obtained point to the potential safety and effectiveness of the active components of the plants as anti-diarrhoeal candidate templates for eventual drug design.

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Unravelling the mystery of tree water uptake along a Namibian ephemeral river — Which tree gets what and from where?

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In this paper we investigate the water use strategies of three riparian tree species (*Acacia erioloba*, *Faidherbia albida* and *Tamarix usneoides*), growing mid-river and on the riparian fringes of the ephemeral Kuiseb River in the Namib Desert. We used stable hydrogen and oxygen isotopes (δD and δ^{18}O) to determine the dependency of these trees on groundwater, fog, soil water and floodwater. In addition, we determine water stress